



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,233	11/27/2006	Bernard Patrick Masterson	0065.37/PCT-CIP-US	6116
25871	7590	04/30/2009		
SWANSON & BRATSCUN, L.L.C. 8210 SOUTHPARK TERRACE LITTLETON, CO 80120			EXAMINER KIM, ELLEN E	
			ART UNIT	PAPER NUMBER
			2874	
			NOTIFICATION DATE	DELIVERY MODE
			04/30/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

efspatents@sbiplaw.com

Office Action Summary	Application No. 10/599,233	Applicant(s) MASTERSON ET AL.	
	Examiner Ellen Kim	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/07, 2/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

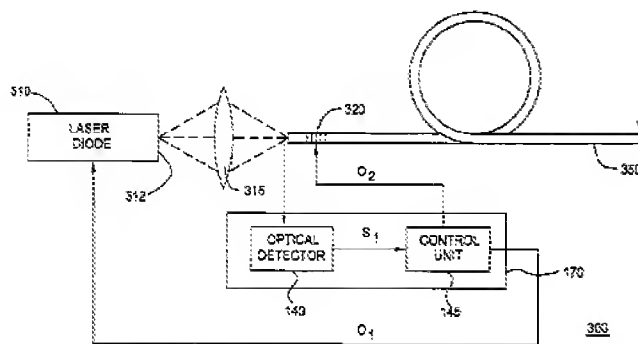
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-3, 5-10,12-13,17-18, 20-26, and 28 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Buchold et al (USPAT 7,158,552).

Re claims 1-3, 5-10, 12-13,17-18, 20-26, and 28, Buchold et al disclose



an optical device and the corresponding method comprising: a multimode optical fiber 350 (see column 3, lines 49-52; column 5, lines 32-35); and means for averaging a modal noise (see claim 1) induced signal level variation of light propagating within the multimode optical fiber.

emission by several orders of magnitude. The fiber grating effectively locks the cavity output of the laser diode to the 50 fixed wavelength of the fiber grating and centers the external cavity multi-longitudinal modes around that wavelength. In

the ultraviolet light that forms the fiber grating. The transmission fiber of the present invention may be a fiber that sustains a single or multiple spatial modes at the wavelength of emission of the laser diode of the present invention. 35

Art Unit: 2874

1. A method for reducing a relative intensity noise of a fiber grating type laser diode including a fiber grating and a laser diode, comprising:
 - detecting at least a portion of an optical signal of said fiber grating type laser diode; 25
 - determining the relative intensity noise of said laser diode using said detected optical signal; and
 - reducing a difference between a maximum gain wavelength of said laser diode and a maximum reflection wavelength of a fiber grating of said fiber grating type laser diode in a manner tending to reduce the relative intensity noise of said fiber grating type laser diode by selectively controlling the laser diode and the fiber grating. 30 35

Buchold et al show in claims 11 and 12 that the means for cyclically varying an index of refraction (this is inherently done by the temperature changing) of the multimode optical fiber over a select period of time; and means for scrambling a light distribution within the multimode optical fiber.

11. The method of claim 10, wherein the maximum reflection wavelength of said fiber grating is adjusted by altering the temperature of said fiber grating.
12. The method of claim 11, wherein the temperature of said fiber grating is altered by adjusting a thermo-electric cooler of said fiber grating.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

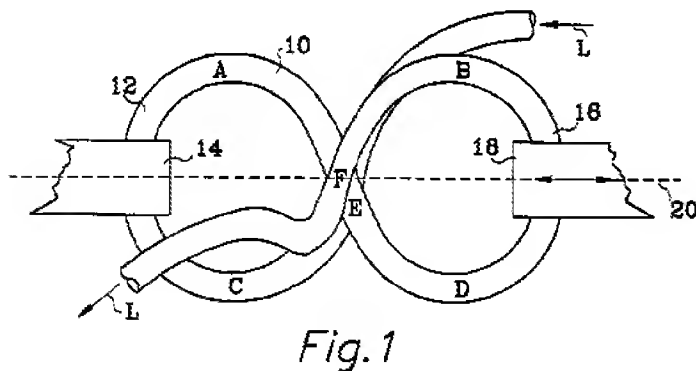
Art Unit: 2874

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 11, 19, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buchold et al as applied to claims 1-3 above, and further in view of Rainovich et al (USPAT 5,841,915).

Buchold et al disclose every aspect of claimed invention except for the means for cyclically manipulating the multimode optical fiber comprises an apparatus configured to perform at least one of: twisting the multimode optical fiber; stretching the multimode optical fiber; shaking the multimode optical fiber.

Rainovich et al disclose an optical device for determining the modal noise of an optical fiber, wherein the means for twisting optical fibers are shown in fig. 1.



It would have been obvious to the ordinary skill in the art at the time the invention was made to modify Buchold et al device to include the twisting means as shown in Rainovich et al invention for the purpose of controlling the optical fiber grating.

Claims 14, 15, and 16 are rejected under 35 U.S.C. 103(a) as being Buchold et al.

Art Unit: 2874

Re claim 14, Buchold et al disclose every aspect of claimed invention except for the heat sink.

Official Notice is taken that utilizing heat sink for the purpose of cooling down the optical device is old and well known in the art. See In Re Malcolm 1942 C.D. 589:543 O.G. 440 MPEP 706.02 (a).

Therefore, it would have been obvious to the ordinary skilled person in the art at the time the invention was made to modify Buchold et al device to include the heat sink for the purpose of cooling down the device so that higher coupling efficiency can be achieved.

Re claim 15, Buchold et al disclose every aspect of claimed invention except for the spool.

Official Notice is taken that utilizing a spool for the purpose of holding extra length of optical fiber is old and well known in the art. See In Re Malcolm 1942 C.D. 589:543 O.G. 440 MPEP 706.02 (a).

Therefore, it would have been obvious to the ordinary skilled person in the art at the time the invention was made to modify Buchold et al device to include the spool for the purpose of holding extra length of optical fiber. It is clear this would improve the device.

Re claim 16, Buchold et al disclose every aspect of claimed invention except for the claimed range of the length of the optical fiber.

It would have been obvious to the ordinary skilled person in the art at the time the invention was made to Buchold et al device have the claimed length of the optical fiber,

Art Unit: 2874

since it has been held that prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

For all official patent application related correspondence for organizations reporting to the Commissioner of Patents:

- Correspondence that is transmitted by facsimile must be directed to the central facsimile number, (703) 872-9306.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Further references of interest are cited on Form PLO-892, which is attachment to this office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen Kim whose telephone number is (571) 272-2349. The examiner can normally be reached on Monday through Thursday.

Application/Control Number: 10/599,233
Art Unit: 2874

Page 8

/Ellen Kim/
Primary Examiner,
Art Unit 2874
April 28, 2009/EK